



# JWSK-5 series of industrial-grade typical temperature and humidity transmitter instruction V1.9

## I. Introduction

JWSK-5 series temperature and humidity transmitter products are positioned as industrial products. It can measure the temperature and humidity in the range of  $-40^{\circ}\text{C} \sim 120^{\circ}\text{C}$ .

- A variety of analog outputs  $0 \sim 5\text{V}$  or  $0 \sim 10\text{V}$  or  $4 \sim 20\text{mA}$
- $128 \times 64$  large LCD display temperature and humidity
- Zero point correction function
- The maximum working temperature range of the probe is  $-40^{\circ}\text{C} \sim 120^{\circ}\text{C}$
- From the temperature and humidity to switch to the temperature, dew point display
- Optional network RS485 or RS232 output
- CE certification

## II. Technical parameters

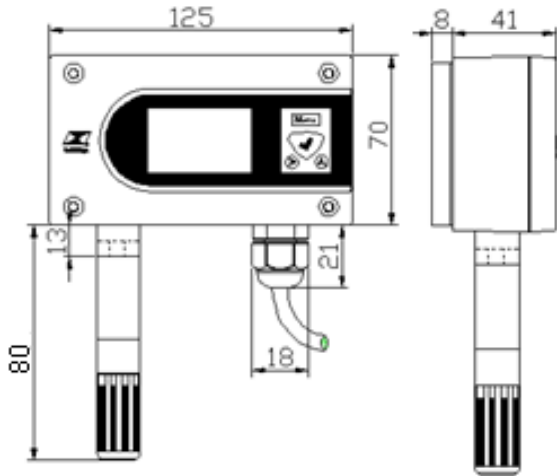
Power voltage:	Current output: DC 24V (22V~26V) Voltage output: DC 24V (12V~24V) Network output: DC 24V (12V~24V)
Power loss:	Current output: $\leq 1.2\text{W}$ Voltage output: $\leq 0.48\text{W}$ Network output: $\leq 0.48\text{W}$ Band display increase 0.24W
Accuracy	Temperature: $\pm 0.5^{\circ}\text{C}$ ( $25^{\circ}\text{C}$ ) (5%RH~95%RH) Humidity: $\pm 3\%RH$ (0%RH~100%RH, $25^{\circ}\text{C}$ )
Response time	Temperature: $\leq 4\text{s}$ (1m/s wind speed ) Humidity: $\leq 15\text{s}$ (1m/s wind speed )
Circuit working condition	Humidity: 5%RH~95%RH Temperature: $-20^{\circ}\text{C} \sim 60^{\circ}\text{C}$
Range of measuring	Humidity: 0%RH ~100%RH Temperature: $-40^{\circ}\text{C} \sim 120^{\circ}\text{C}$ (According to the product label ) Dew point: $-50^{\circ}\text{C} \sim 100^{\circ}\text{C}$ (Fixed, no display, no this function )
Analog output	$0 \sim 5\text{V}$ or $0 \sim 10\text{V}$ or $4 \sim 20\text{mA}$ (depending on the product label)
Network output	RS485 and RS232 (according to the product label and decide)
Liquid crystal display	Temperature $^{\circ}\text{C}$ , Humidity %RH, Dew point $^{\circ}\text{C}$
Display resolution	0.1%RH, 0.1 $^{\circ}\text{C}$
Load	Voltage output impedance $\leq 250\Omega$ , Current output $\leq 500\Omega$
Sensor characteristics	Repeatability $\leq 0.5\%RH$ , $\leq 0.1^{\circ}\text{C}$ ; Annual drift $\leq 1\%RH$ , $\leq 0.1^{\circ}\text{C}$
Installation:	Wall mounted type ,Pipeline type, Split type
Shell size	125mm $\times$ 70mm $\times$ 41mm (Not the probe part)
Product weight	ABS wall-mounted type about 300g, Metal wall-mounted type is about 370g ABS pipe type about 200g, Metal pipe type about 490g

**Note: Specific temperature, humidity, dew point range and output see product label**

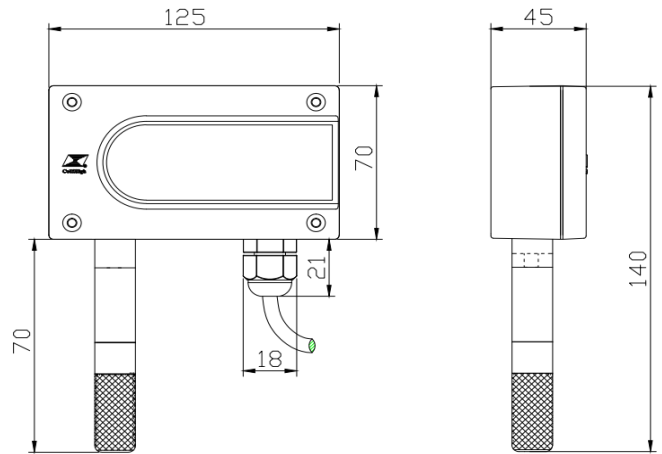
## III. Shape and Connection

## Wall mounted type

W type (ABS)

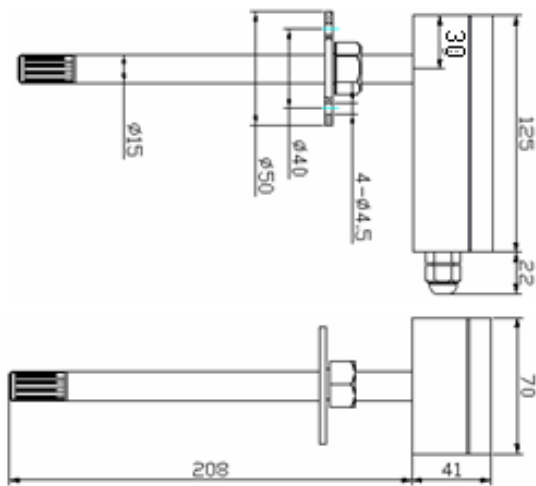


W6 type (metal)

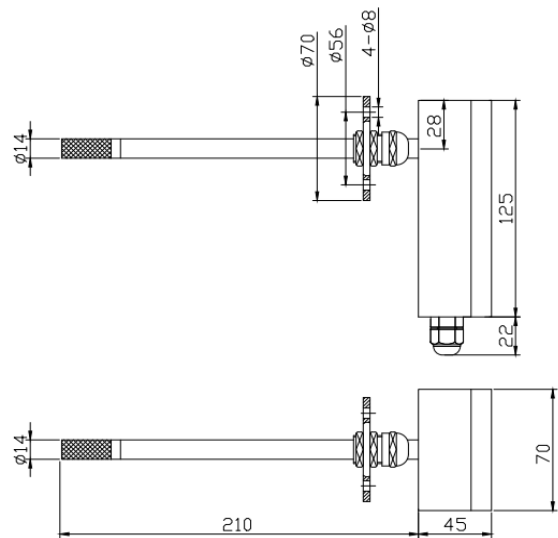


## Pipeline type

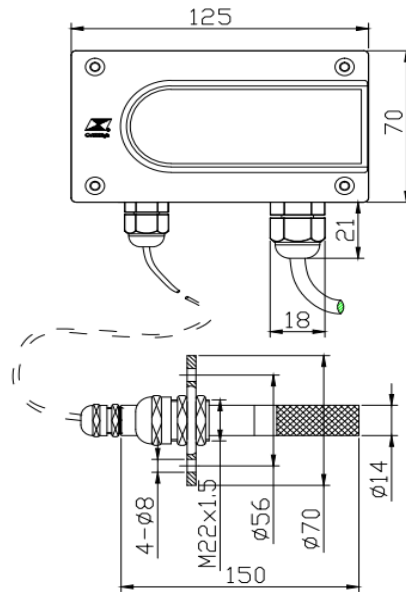
D type (ABS)



D5/D6(metal)



## Split type



**Wiring specification:** (any error connection is likely to be irreversible to the transmitter)

(There are four hexagon screws on the front of the shell, which can open the transmitter and internal circuit board identification):

Power supply, analog or network output

Red (24V): 24V (Power +);

Yellow ( T ):Analog output current or voltage output temperature;

Blue ( H ): Analog output humidity current or voltage output (dew point current or voltage output, factory default humidity, set according to the menu);

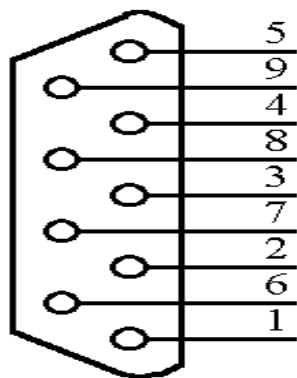
Yellow ( TX ): The network outputs the A+ end of the RS485 signal line or the RS232 signal TX line;

Blue ( RX ): The network output RS485 bs-end or RS232 signal Line RX;

Black (GND): GND (Ground);

**Note: current type:JWSK-5ACXX; Voltage type:JWSK-5VB/VCXX; Network type:JWSK-5W1/W2XX**

RS232 interface connection (with the DB9 RS232 interface connection signal)



DB9 socket

The DB9 terminal outputs are defined as follows:

Pin2: TX -- yellow

Pin3: RX -- blue

Pin5: GND -- black

**RS232**

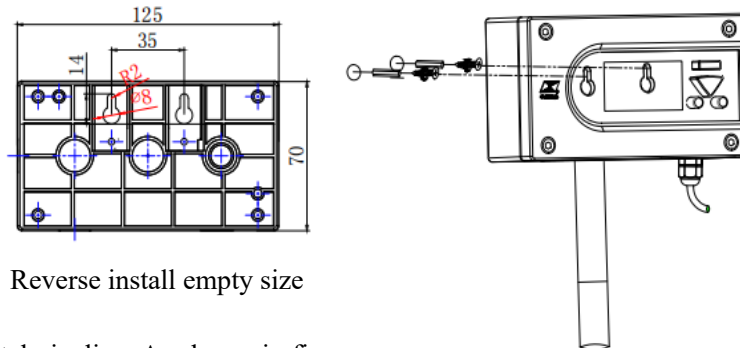
**Wiring Diagram**

## IV. Installation

## Installation steps:

1. Wall mounted type: according to the above 1 size holes on the surface of the installation, choose appropriate accessories installed in the hole, hang up the transmitter.

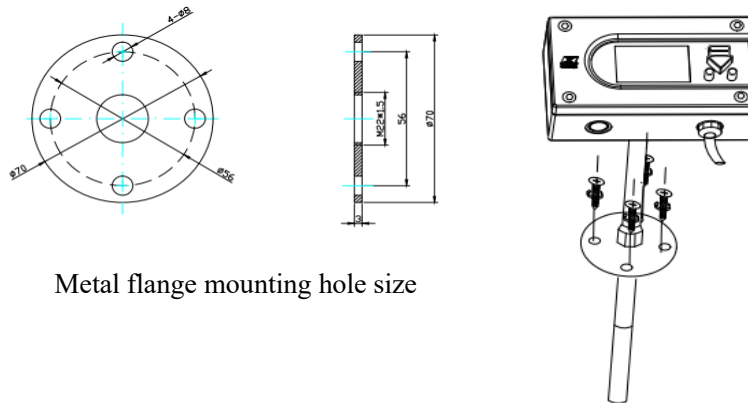
Figure 1:



Reverse install empty size

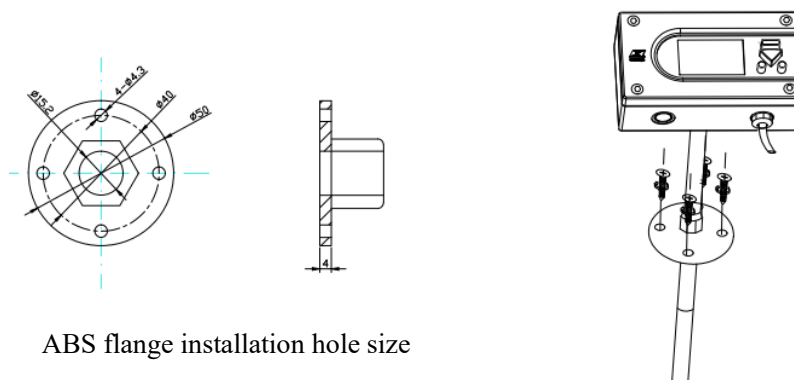
2. Pipeline type: Metal pipeline: As shown in figure 2, fixed on the wall or pipe with 4 holes of  $\phi 8$  on the flange (optional flange), and the mounting thread of the probe  $M22 \times 1.5$  is fixed on the wall or pipe (optional thread);

ABS pipe pipeline type: As shown in figure 3, fixed to the wall or pipe with 4 holes of  $\phi 4.3$  in the flange on the probe.



Metal flange mounting hole size

Figure 2

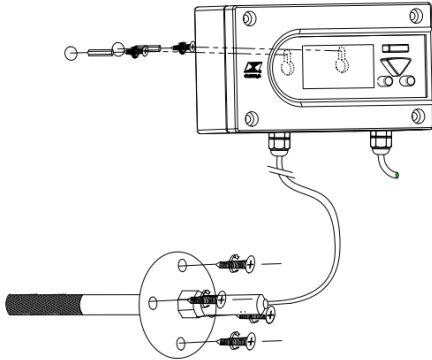


ABS flange installation hole size

Figure 3

3. Split type: According to the above 1 size holes on the surface of the installation, choose appropriate accessories installed in the hole, the transmitter hang up; The probe is fixed to the wall or pipe with four holes of  $\phi 8$  in the flange

(optional flange), and the probe is fixed to the wall or pipe with M22×1.5 mounting thread (optional thread).



4. Connect to the acquisition device with a transmitter cable.

**Note: Metal mounting thread size is M22×1.5**

### Installation location:

1. The transmitter should be placed vertically as far as possible, and when installed, ensure that the sensor is below the transmitter (the front on the transmitter is positive direction);
2. The installation height is the sitting height of the human body or the environmental area where the main requirements are measured;
3. Will transmitter according to on the metope of shining, smooth air circulation, in order to measure the average temperature and humidity of the region.

### Installation note:

1. Avoid the installation in the area where heat transfer is easy and the temperature difference between the area to be measured will be directly caused, otherwise the temperature and humidity measurement will be inaccurate.
2. Installed in the area of environmental stability, avoid direct sunlight, away from the window and air conditioning, heating and other equipment, avoid straight to the window and door.
3. Away from high power interference device as far as possible, lest cause inaccurate measurement, such as frequency converter, motor, etc.

### V. Use

1. Carefully check to ensure that the wiring is correct, through the RS485 conversion module (485 output) or directly (232 output) connected to the PC RS232 serial port, connect DC 24V or 12V power supply, you can check the temperature and humidity value through the test software; Analog output: when the plug into the DC 24 v or 12 v power supply, when using a multimeter to measure will be output corresponding to the current or voltage value. (See the appendix of the newsletter for details.)

2. If you want to remove the transmitter, you must first disconnect the power supply and then remove it.

3. This transmitter is indoor type, the transmitter internal to avoid water entry, so as not to cause damage; If you want to use outdoors, you must install a ventilated shield to avoid water inside the transmitter.

4. The transmitter with liquid crystal display, powered, can directly observe whether the display is correct. (See operation appendix for details of LCD panel operation)

### VI. Attention

1. Please read this manual carefully before use to make sure the wiring is correct. Any incorrect wiring may cause irreversible damage to the transmitter.

2. Avoid installation in zones where heat transfer is easy and will directly cause temperature differences with the area to be measured, as this will result in inaccurate temperature and humidity measurements.

3. Prevent chemical reagents, oil, dust, etc. from directly attacking the sensor, and do not use it for a long time under

the environment of condensation and extreme temperature. Do not carry out cold or thermal shock.

4.This product is an electronic product, scrapping will produce environmental pollution, scrapping should follow the national electronic device scrapping related standards.

## VII. Maintenance

1.The transmitter will be offset when used for a long time. In order to ensure the accuracy of measurement, it is best to calibrate once a year.

2.If the sensor filter is made of metal, it can be removed after 2 to 3 months of use, and the filter can be cleaned to make the measurement environment flow normally.

## VIII. Transportation, storage

1.Transmitter try to avoid vibration, lightly take and put.

2.Long-term optimal storage conditions: 10°C~40°C; 20%RH~50%RH.

## IX. Open box inspection

1.After opening the package, check whether the transmitter is intact.

- |                           |          |
|---------------------------|----------|
| 2. Transmitter            | 1set     |
| Manual                    | 1serving |
| Certificate of conformity | 1sheet   |

## X. Troubleshooting and Analysis

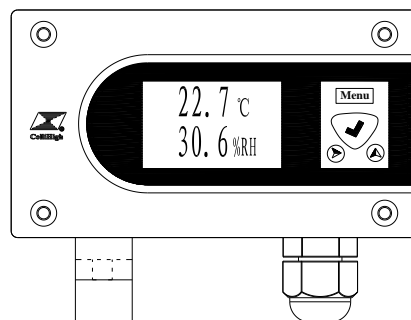
1. When analog output, if the transmitter output is 0, or the output value is not within the range, please check whether the wiring is correct and firm.

2. When the network output, if the transmitter can not communicate, please check whether the wiring is correct and firm; Communication test software is set correctly (baud rate, data bit, stop bit check mode, flow control. Products factory defaults to:, 9600,8,1, n, no.)

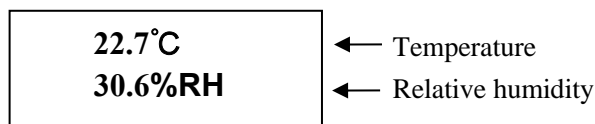
3. If not these reasons, please contact the manufacturer.

## Appendix 1: LCD panel operation

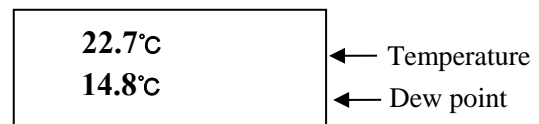
1.Panel chart and display measurement values (factory default temperature, humidity)



2.Temperature and humidity display



Dew point shows



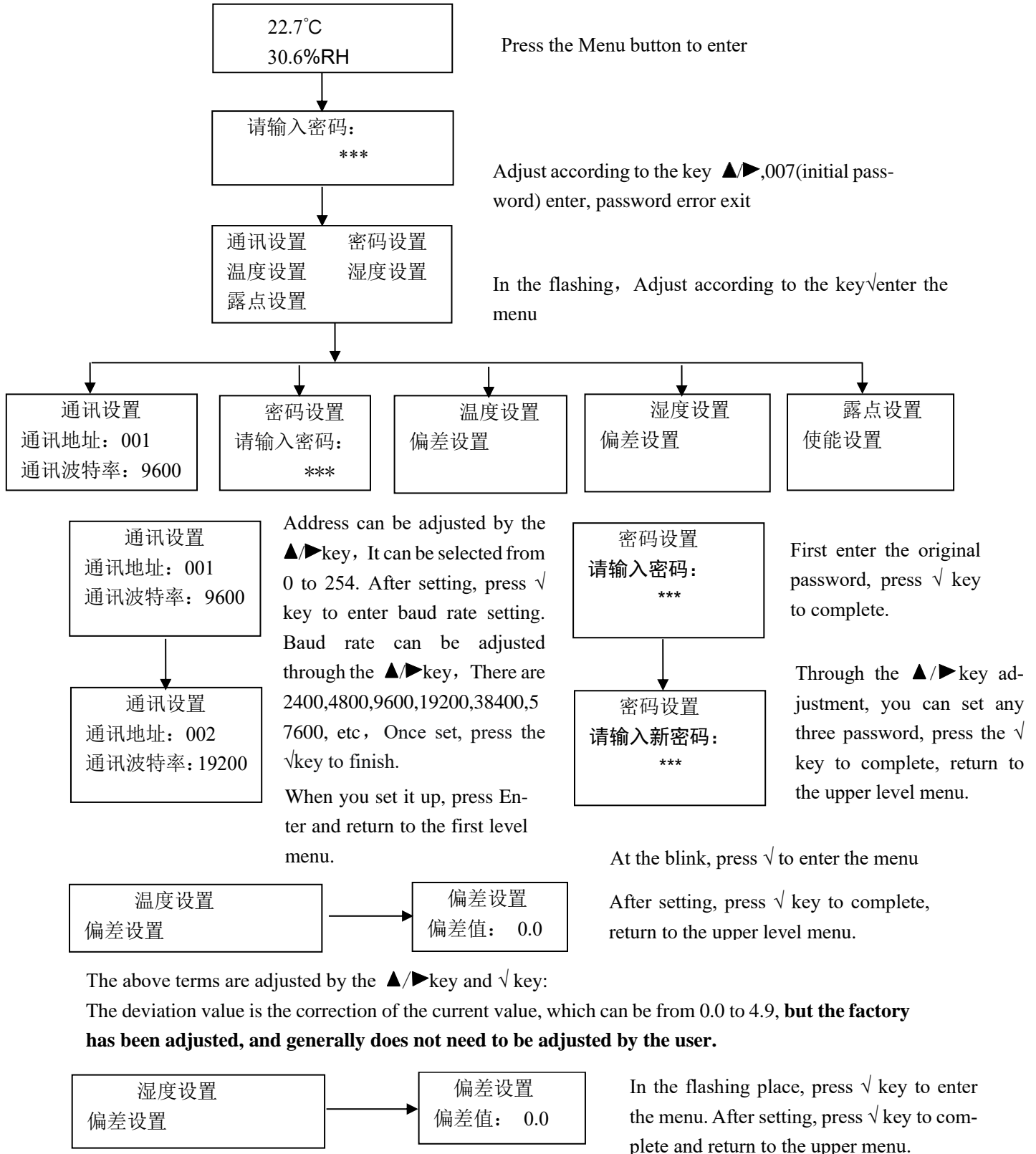
3.Keypress Description

- Menu: Enter or return to the menu at the next higher level
- ▲ : Change the parameter key, from 0 to 9, loop change (change at the cursor blink)
- ► : The shift key, on the can change the parameters of the cyclic shift
- √ : Enter or store arguments and continue to the next item

- If there is no keyboard operation within 15s, it will automatically return to the display state

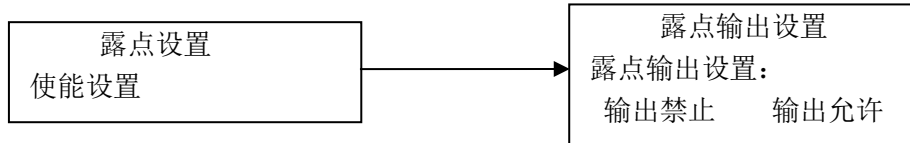
**Note: press the cursor blink▲/▶key adjust the parameters, According to the√ enter or store parameters or skip to the next parameter at the blink**

4. See the changed parameters:



Use the ▲/▶ key and√ to adjust:

Deviation value is the current correction, which can be from 0.0 to 9.9, **but the factory has to adjust the, generally no user control.**



The above terms are regulated by the ▲/▶key, √key:

1. When set to "output allowed", the LCD is displayed as output temperature and dew point.
2. The two paths simulate the output corresponding temperature and the dew-point, and the network output can be accessed by the upper machine.

**Note: The menus listed are all functional display, users can use according to their selected products, no selection is useless.**

### Meaning of menu interface:

- 1.请输入密码: Please enter password
- 2.通讯设置: Communication Settings
- 3.密码设置: Password Settings
- 4.温度设置: Temperature setting
- 5.湿度设置: Humidity setting
- 6.露点设置: Dew point setting
- 7.通讯地址: Address of correspondence
- 8.通讯波特率: Communication baud rate:
- 9.请输入新密码: Please enter a new password
- 10.偏差设置: Deviation setting
- 11.偏差值: Value of deviation
- 12.使能设置: Enable Settings
- 13.露点输出设置: Dew point output Settings
- 14.输出禁止: Output suppression
- 15.输出允许: Output allowed

### Appendix 2: Communication protocol

1. Conforms to MODBUS standard (RTU mode). Master-slave mode in which the host queries and the transmitter replies

Quer y Data	Device Ad- dress	Func- tion Code	Memor y start address	Data Number	CRC16 (L)	CRC1 6(H)	Sample
Tem- pera- ture	0X XX	0X03	0X0000	0X0001	CRCL	CRCH	010300000001840A Response: Address 0302 Temperature H Tem- perature L CRCL CRCH



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Hu- mid- ity	0X XX	0X03	0X0001	0X0001	CRCL	CRCH	010300010001D5CA Response: Address 0302 Humidity H Humidity L CRCL CRCH
Dew point	0X XX	0X03	0X0002	0X0001	CRCL	CRCH	01030002000125CA Response: Address 0302 Dew point H Dew point L CRCL CRCH
Tem- pera- ture Hu- mid- ity	0X XX	0X03	0X0000	0X0002	CRCL	CRCH	010300000002C40B Response: Address 0304 Temperature H Tem- perature L Humidity H Humidity L CRCL CRCH
De- vice Ad- dress	FF	0X03	0X0003	0X0001	CRCL	CRCH	FF030003000161D4 Response: Address 0302 Address H Address L CRCL CRCH
Baud rate	0X XX	0X03	0X0004	0X0001	CRCL	CRCH	010300040001C5CB Response: Address 0302 Baud rate code H Baud rate code L CRCL CRCH

2.The transmitter address can be changed through the serial port

Change of address (0X01 – 0XFE); Modify baud rate should be particularly careful when, modify the error may cause cannot communication.

Mod- ify com- mu- nica- tion pa- ram- eters	Device Address	Func- tion Code	Memory start ad- dress	Set- ting pa- ram- eters H	Set- ting pa- ram- eters L	CRC16 (L)	CRC 16 (H)	Sample
Ad- dress	Original address	0X06	0X0003	New Ad- dress H	New Ad- dress L	CRCL	CRC H	After setting, the new ad- dress will take effect imme- diately after the power out- age.  To change the address of the transmitter with address 01 to address 02, the operation is:010600030002F80B Response: The return value is the same as the issue command, that is, the setup is successful;
Baud	Address	0X06	0X0004	Baud	Baud	CRCL	CRC	Communication baud rate



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rate				rate code H	rate code L		H	changed to 38400 operation: 0106000400050808 Response: The return value is the same as the issue command, that is, the setup is successful;
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**Note: the high byte CRC check CRCH, CRCL for low byte CRC check**

3. Data H (high byte) and data L (low byte) are the corresponding current temperature and humidity values:

- The uploaded data should be divided by 10, e.g. humidity uploaded in hexadecimal 0311, converted to decimal 785, which means 78.5%.
- Positive temperature conversion, such as temperature upload 0X00FC, convert decimal to 252, which means 25.2°C.
- Negative temperature conversion, such as temperature upload 0XFF8C, take the complement - (0XFFFF-0XFF8C+1) to convert to decimal as -116, said -11.6 °C.
- Dew point conversion, such as dew point upload 0X0037, convert decimal to 55, said 5.5 °C.

4. Byte format 8 data bits, no check, 1 stop bit, default baud rate 9600.

Example: If the factory default address is 01 transmitter direct query, in the serial debugging program for communication Settings as above, input :010300000002C40B

Note: Baud rate codes correspond to actual baud rates as follows

Baud rate code	00	01	02	03	04	05	06
Baud rate (kbps)	1200	2400	4800	9600	19200	38400	57600